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E40      1  PN=BR 9811006
E41      1  PN=BR 9811007
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E44      1  PN=BR 9811010
E45      1  PN=BR 9811011
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E47      1  PN=BR 9811013
E48      1  PN=BR 9811014
E49      1  PN=BR 9811015
E50      1  PN=BR 9811016

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S1      1  PN='BR 9810967'

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? t 1/7/1

1/7/1

DIALOG(R)File 351: Derwent WPI

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0009253575 *Drawing available*

WPI Acc no: 1999-181268/199915

Related WPI Acc No: 1996-465320; 1997-363998; 1998-363180; 1999-154174; 1999-154175;
1999-154176; 1999-154177; 1999-154178; 1999-154179; 1999-243551; 2002-060946; 2002-
499082; 2002-705909; 2002-722051; 2002-722052; 2003-677663; 2003-898213; 2004-155029;
2004-478232; 2004-579235; 2004-623798; 2005-809338; 2007-015228

XRPX Acc No: N1999-133079

method for decrypting an instance of service that has been decrypted with short-term key

Patent Assignee: SCIENTIFIC-ATLANTA INC (SCAT)

Inventor: AKINS G L; PALGON M S; PINDER H G; WASILEWSKI A J; AKINS G

Patent Family (8 patents, 79 countries)

| Patent Number | Kind | Date | Application Number | Kind | Date | Update | Type |
|---------------|------|----------|--------------------|------|----------|--------|------|
| WO 1999009743 | A2 | 19990225 | WO 1998US16079 | A | 19980731 | 199915 | B |

| | | | | | | | |
|---------------|----|----------|----------------|---|----------|--------|---|
| AU 199915816 | A | 19990308 | AU 199915816 | A | 19980731 | 199929 | E |
| EP 1000511 | A2 | 20000517 | EP 1998960147 | A | 19980731 | 200028 | E |
| | | | WO 1998US16079 | A | 19980731 | | |
| BR 199810967 | A | 20011030 | BR 199810967 | A | 19980731 | 200173 | E |
| | | | WO 1998US16079 | A | 19980731 | | |
| EP 1000511 | B1 | 20011114 | EP 1998960147 | A | 19980731 | 200175 | E |
| | | | WO 1998US16079 | A | 19980731 | | |
| DE 69802540 | E | 20011220 | DE 69802540 | A | 19980731 | 200207 | E |
| | | | EP 1998960147 | A | 19980731 | | |
| | | | WO 1998US16079 | A | 19980731 | | |
| JP 2003521820 | W | 20030715 | WO 1998US16079 | A | 19980731 | 200347 | E |
| | | | JP 2000510276 | A | 19980731 | | |
| JP 2005253109 | A | 20050915 | JP 2000510276 | A | 19980731 | 200560 | E |
| | | | JP 2005120425 | A | 20050418 | | |

Priority Applications (no., kind, date): US 199754575 P 19970801; US 1998126921 A 19980731

Patent Details

| Patent Number | Kind | Lan | Pgs | Draw | Filing Notes | |
|-------------------------------------|---|-----|-----|------|---------------------|----------------|
| WO 1999009743 | A2 | EN | 113 | 29 | | |
| National Designated States,Original | AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM HR HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW | | | | | |
| Regional Designated States,Original | AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW | | | | | |
| AU 199915816 | A | EN | | | Based on OPI patent | WO 1999009743 |
| EP 1000511 | A2 | EN | | | PCT Application | WO 1998US16079 |
| | | | | | Based on OPI patent | WO 1999009743 |
| Regional Designated States,Original | DE FR GB IT NL | | | | | |
| BR 199810967 | A | PT | | | PCT Application | WO 1998US16079 |
| | | | | | Based on OPI patent | WO 1999009743 |
| EP 1000511 | B1 | EN | | | PCT Application | WO 1998US16079 |
| | | | | | Based on OPI patent | WO 1999009743 |
| Regional Designated States,Original | DE FR GB IT NL | | | | | |
| DE 69802540 | E | DE | | | Application | EP 1998960147 |
| | | | | | PCT Application | WO 1998US16079 |
| | | | | | Based on OPI patent | EP 1000511 |

| | | | | | |
|---------------|---|----|-----|-------------------------|----------------|
| JP 2003521820 | W | JA | 136 | Based on OPI patent | WO 1999009743 |
| | | | | PCT Application | WO 1998US16079 |
| JP 2005253109 | A | JA | 59 | Based on OPI patent | WO 1999009743 |
| | | | | Division of application | JP 2000510276 |

Alerting Abstract WO A2

NOVELTY - The method involves receiving a second message in a receiver together with the instance of the service. The second message includes a key derivation value that is used with a long-term key to obtain the short-term key to decrypt the instance of the service.

DESCRIPTION - A control word is combined into an encrypted coded message (ECM) (107) with other service-related information. The ECM (107) is authenticated by Control Word Encrypt & Message Authenticate function (204) which produces a message authentication code using a keyed-hash value derived from the message content combined with a secret which can be shared with the receiving set-top box (113). This secret is preferably part or all of a multisession key (MSS) (208). The message authentication code is appended to the rest of the ECM (107). The CAW (202) is always encrypted before being sent along with the other parts of the ECM to MX (200). This encryption is preferably a symmetric cipher such as the Triple-DES algorithm using two distinct 56-bit keys (which taken together comprise MSS (208)).

USE - The invention concerns systems for protecting information and more particularly concerns systems for protecting information that is transmitted by a wired or wireless medium against unauthorized access.

ADVANTAGE - The service distribution organizations require access restrictions which are both more secure and more flexible than those in conventional systems

DESCRIPTION OF DRAWINGS - The drawing is a block diagram of service instance encryption techniques.

107 encrypted coded message

204 Control Word Encrypt & Message Authenticate function

200 MX

Title Terms /Index Terms/Additional Words: METHOD; INSTANCE; SERVICE; SHORT; TERM; KEY

Class Codes**International Patent Classification**

| IPC | Class Level | Scope | Position | Status | Version Date |
|---|-------------|-------|-----------|--------|--------------|
| H04L-009/08 | | | Main | | "Version 7" |
| H04H-001/00; H04N-007/167; H04N-007/173 | | | Secondary | | "Version 7" |
| H04H-0001/00 | A | I | L | R | 20060101 |
| H04L-0009/08 | A | I | L | R | 20060101 |
| H04N-0005/00 | A | I | | R | 20060101 |
| H04N-0007/16 | A | I | | R | 20060101 |
| H04N-0007/167 | A | I | | R | 20060101 |
| H04N-0007/173 | A | I | F | R | 20060101 |

| | | | | | |
|---------------|---|---|---|---|----------|
| H04H-0001/00 | C | I | L | R | 20060101 |
| H04L-0009/08 | C | I | F | R | 20060101 |
| H04N-0005/00 | C | I | | R | 20060101 |
| H04N-0007/16 | C | I | | R | 20060101 |
| H04N-0007/167 | C | I | | R | 20060101 |
| H04N-0007/173 | C | I | L | R | 20060101 |

File Segment: EPI;
 DWPI Class: W02; W03
 Manual Codes (EPI/S-X): W02-F05A1B; W03-A16C3A

Original Publication Data by Authority

Australia

Publication No. AU 199915816 A (Update 199929 E)
Publication Date: 19990308
Assignee: SCIENTIFIC-ATLANTA INC; US (SCAT)
Language: EN
Application: AU 199915816 A 19980731 (Local application)
Priority: US 199754575 P 19970801
 US 1998126921 A 19980731
Related Publication: WO 1999009743 A (Based on OPI patent)
Current IPC: H04H-1/00(R,I,M,JP,20060101,20051220,A,L) H04H-1/00
 (R,I,M,JP,20060101,20051220,C,L) H04L-9/08(R,I,M,JP,20060101,20051220,A,L) H04L-9/08
 (R,I,M,JP,20060101,20060310,C,F) H04N-5/00(R,I,M,EP,20060101,20051008,A) H04N-5/00
 (R,I,M,EP,20060101,20051008,C) H04N-7/16(R,I,M,EP,20060101,20051008,A) H04N-7/16
 (R,I,M,EP,20060101,20051008,C) H04N-7/167(R,I,M,EP,20060101,20051008,A) H04N-7/167
 (R,I,M,EP,20060101,20051008,C) H04N-7/173(R,I,M,JP,20060101,20051220,A,F) H04N-7/173
 (R,I,M,JP,20060101,20051220,C,L)

Brazil

Publication No. BR 199810967 A (Update 200173 E)
Publication Date: 20011030
Assignee: SCIENTIFIC-ATLANTA INC (SCAT)
Inventor: WASILEWSKI A J
 AKINS G L
 PALGON M S
 PINDER H G
Language: PT
Application: BR 199810967 A 19980731 (Local application)
 WO 1998US16079 A 19980731 (PCT Application)
Priority: US 199754575 P 19970801
 US 1998126921 A 19980731
Related Publication: WO 1999009743 A (Based on OPI patent)

Current IPC: H04H-1/00(R,I,M,JP,20060101,20051220,A,L) H04H-1/00
 (R,I,M,JP,20060101,20051220,C,L) H04L-9/08(R,I,M,JP,20060101,20051220,A,L) H04L-9/08
 (R,I,M,JP,20060101,20060310,C,F) H04N-5/00(R,I,M,EP,20060101,20051008,A) H04N-5/00
 (R,I,M,EP,20060101,20051008,C) H04N-7/16(R,I,M,EP,20060101,20051008,A) H04N-7/16
 (R,I,M,EP,20060101,20051008,C) H04N-7/167(R,I,M,EP,20060101,20051008,A) H04N-7/167
 (R,I,M,EP,20060101,20051008,C) H04N-7/173(R,I,M,JP,20060101,20051220,A,F) H04N-7/173
 (R,I,M,JP,20060101,20051220,C,L)

Germany

Publication No. DE 69802540 E (Update 200207 E)
Publication Date: 20011220
Assignee: SCIENTIFIC-ATLANTA INC; US (SCAT)
Language: DE
Application: DE 69802540 A 19980731 (Local application)
 EP 1998960147 A 19980731 (Application)
 WO 1998US16079 A 19980731 (PCT Application)
Priority: US 199754575 P 19970801
 US 1998126921 A 19980731
Related Publication: EP 1000511 A (Based on OPI patent)
 WO 1999009743 A (Based on OPI patent)

EPO

Publication No. EP 1000511 A2 (Update 200028 E)
Publication Date: 20000517
Assignee: SCIENTIFIC-ATLANTA, INC., One Technology Parkway South, Norcross, Georgia 30092, US
Inventor: AKINS, Glendon, L., III, 2510 Windward Lane N.E., Gainesville, GA 30501, US
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 WASILEWSKI, Anthony, J., 10680 Wren Ridge Road, Alpharetta, GA 30022, US
Agent: Kugele, Bernhard, NOVAPAT INTERNATIONAL SA, 9, Rue du Valais, 1202 Geneve, CH
Language: EN
Application: EP 1998960147 A 19980731 (Local application)
 WO 1998US16079 A 19980731 (PCT Application)
Priority: US 199754575 P 19970801
 US 1998126921 A 19980731
Related Publication: WO 1999009743 A (Based on OPI patent)
Designated States: (Regional Original) DE FR GB IT NL
Original IPC: H04N-7/167(A)
Current IPC: H04H-1/00(R,I,M,JP,20060101,20051220,A,L) H04H-1/00
 (R,I,M,JP,20060101,20051220,C,L) H04L-9/08(R,I,M,JP,20060101,20051220,A,L) H04L-9/08
 (R,I,M,JP,20060101,20060310,C,F) H04N-5/00(R,I,M,EP,20060101,20051008,A) H04N-5/00
 (R,I,M,EP,20060101,20051008,C) H04N-7/16(R,I,M,EP,20060101,20051008,A) H04N-7/16
 (R,I,M,EP,20060101,20051008,C) H04N-7/167(R,I,M,EP,20060101,20051008,A) H04N-7/167
 (R,I,M,EP,20060101,20051008,C) H04N-7/173(R,I,M,JP,20060101,20051220,A,F) H04N-7/173
 (R,I,M,JP,20060101,20051220,C,L)
Original Abstract:

A cable television system provides conditional access to services. The cable television system includes a headend from which service "instances", or programs, are broadcast and a plurality of set top units for receiving the instances and selectively decrypting the instances for display to system subscribers. The service instances are encrypted using public and/or private keys provided by service providers or central authorization agents. Keys used by the set tops for selective decryption may also be public or private in nature, and such keys may be reassigned at different times to provide a cable television system in which piracy concerns are minimized.

Publication No. EP 1000511 B1 (Update 200175 E)

Publication Date: 20011114

Assignee: Scientific-Atlanta, Inc., 5030 Sugarloaf Parkway, Lawrenceville, GA 30044, US

Inventor: AKINS, Glendon, L., III, 2510 Windward Lane N.E., Gainesville, GA 30501, US

PALGON, Michael, S., 1196 Poplar Grove Drive, Atlanta, GA 30306, US

PINDER, Howard, G., 4317 Stilson Circle, Norcross, GA 30092, US

WASILEWSKI, Anthony, J., 10680 Wren Ridge Road, Alpharetta, GA 30022, US

Agent: Kugele, Bernhard, NOVAPAT INTERNATIONAL SA, 9, Rue du Valais, 1202 Geneve, CH

Language: EN

Application: EP 1998960147 A 19980731 (Local application)

WO 1998US16079 A 19980731 (PCT Application)

Priority: US 199754575 P 19970801

US 1998126921 A 19980731

Related Publication: WO 1999009743 A (Based on OPI patent)

Designated States: (Regional Original) DE FR GB IT NL

Original IPC: H04N-7/167(A)

Current IPC: H04H-1/00(R,I,M,JP,20060101,20051220,A,L) H04H-1/00

(R,I,M,JP,20060101,20051220,C,L) H04L-9/08(R,I,M,JP,20060101,20051220,A,L) H04L-9/08

(R,I,M,JP,20060101,20060310,C,F) H04N-5/00(R,I,M,EP,20060101,20051008,A) H04N-5/00

(R,I,M,EP,20060101,20051008,C) H04N-7/16(R,I,M,EP,20060101,20051008,A) H04N-7/16

(R,I,M,EP,20060101,20051008,C) H04N-7/167(R,I,M,EP,20060101,20051008,A) H04N-7/167

(R,I,M,EP,20060101,20051008,C) H04N-7/173(R,I,M,JP,20060101,20051220,A,F) H04N-7/173

(R,I,M,JP,20060101,20051220,C,L)

Claim:

1. Verfahren der Entschlüsselung einer Diensteeinheit (325), die mit einem gegebenen Kurzzeitschlüssel (319) verschlüsselt wurde, wobei das Verfahren in einem Empfänger (333) ausgeführt wird, der ein Öffentlich/Privat-Schlüsselpaar besitzt, und das Verfahren durch die folgenden Schritte **gekennzeichnet** ist:
 - o im Empfänger eine erste Nachricht (315) zu empfangen, deren Inhalt einen ersten Langzeitschlüssel (309) einschliesst und unter Verwendung des öffentlichen Schlüssels (312) für den Empfänger (333) verschlüsselt wurde;
 - o den privaten Schlüssel (337) zur Entschlüsselung des Inhalts zu verwenden;
 - o den ersten Schlüssel (309) zu speichern;
 - o im Empfänger (333) zusammen mit der verschlüsselten Diensteeinheit (329) eine zweite Nachricht (323) zu empfangen, wobei die zweite Nachricht (323) einen Indikator für einen zweiten Kurzzeitschlüssel (319) einschliesst;
 - o den Indikator und den ersten Schlüssel (309) zu benutzen, um den zweiten Schlüssel zu erhalten; worin der zweite Schlüssel dem gegebenen Schlüssel (319), mit dem der Dienst verschlüsselt wurde, gleichwertig ist, und
 - o den zweiten Schlüssel zur Entschlüsselung der empfangenen Diensteeinheit zu

verwenden.

1. A method of decrypting an instance of a service (325) that has been encrypted with a given short-term key (319), the method being carried out in a receiver (333) that has a public key-private key pair and the method being **characterised** by the following steps:
 - o receiving a first message (315) in the receiver whose contents include a first long-term key (309), the contents having been encrypted using the public key (312) for the receiver (333);
 - o using the private key (337) to decrypt the contents;
 - o storing the first key (309);
 - o receiving a second message (323) in the receiver (333) together with the encrypted instance of the service (329), the second message (323) including an indicator for a second short-term key (319);
 - o using the indicator and the first key (309) to obtain the second key; wherein the second key is equivalent to the given key (319) that encrypted the service, and
 - o using the second key to decrypt the received instance of the service.

1. Procédé de decryptage d'une instance d'un service (326) qui était cryptée avec une cle à court terme donnée (319), le procédé étant exécuté dans un récepteur (333) qui comporte une paire de cle publique-cle privée et le procédé étant **caractérisé** par les étapes suivantes:
 - o recevoir un premier message (315) dans le récepteur dont le contenu comprend une première cle à long terme (309), le contenu ayant été crypté en utilisant la cle publique (312) pour le récepteur (333),
 - o utiliser la cle privée (337) pour decrypter le contenu,
 - o mémoriser la première cle (309),
 - o recevoir un second message (323) dans le récepteur (333) en même temps que l'instance cryptée du service (329), le second message (323) comprenant un indicateur pour une seconde cle à court terme (319),
 - o utiliser l'indicateur et la première cle (309) pour obtenir la seconde cle, dans lequel
 - o la seconde cle est équivalente à la cle donnée (319) qui a crypté le service, et
 - o utiliser la seconde cle pour decrypter l'instance reçue du service.

Japan

Publication No. JP 2003521820 W (Update 200347 E)

Publication Date: 20030715

Language: JA (136 pages)

Application: WO 1998US16079 A 19980731 (PCT Application)

JP 2000510276 A 19980731 (Local application)

Priority: US 199754575 P 19970801

US 1998126921 A 19980731

Related Publication: WO 1999009743 A (Based on OPI patent)

Original IPC: H04L-9/08(A) H04H-1/00(B) H04N-7/167(B) H04N-7/173(B)
 Current IPC: H04L-9/08(A) H04H-1/00(B) H04N-7/167(B) H04N-7/173(B)

Publication No. JP 2005253109 A (Update 200560 E)

Publication Date: 20050915

CONDITIONAL ACCESS SYSTEM

Assignee: SCIENTIFIC-ATLANTA INC (SCAT)

Inventor: AKINS GLENDON L III

PALGON MICHAEL S

PINDER HOWARD G

WASILEWSKI ANTHONY J

Language: JA (59 pages)

Application: JP 2000510276 A 19980731 (Division of application)

JP 2005120425 A 20050418 (Local application)

Priority: US 199754575 P 19970801

US 1998126921 A 19980731

Original IPC: H04L-9/08(A)

Current IPC: H04H-1/00(R,I,M,JP,20060101,20051220,A,L) H04H-1/00

(R,I,M,JP,20060101,20051220,C,L) H04L-9/08(R,I,M,JP,20060101,20051220,A,L) H04L-9/08

(R,I,M,JP,20060101,20060310,C,F) H04N-5/00(R,I,M,EP,20060101,20051008,A) H04N-5/00

(R,I,M,EP,20060101,20051008,C) H04N-7/16(R,I,M,EP,20060101,20051008,A) H04N-7/16

(R,I,M,EP,20060101,20051008,C) H04N-7/167(R,I,M,EP,20060101,20051008,A) H04N-7/167

(R,I,M,EP,20060101,20051008,C) H04N-7/173(R,I,M,JP,20060101,20051220,A,F) H04N-7/173

(R,I,M,JP,20060101,20051220,C,L)

WIPO

Publication No. WO 1999009743 A2 (Update 199915 B)

Publication Date: 19990225

CONDITIONAL ACCESS SYSTEM

RESEAU D'ACCES CONDITIONNEL

Assignee: SCIENTIFIC-ATLANTA, INC., Intellectual Property Dept., One Technology Parkway South, Norcross, GA 30092, US Residence: US Nationality: US (SCAT)

Inventor: AKINS, Glendon, L., III, 2510 Windward Lane N.E., Gainesville, GA 30501, US

PALGON, Michael, S., 1196 Poplar Grove Drive, Atlanta, GA 30306, US

PINDER, Howard, G., 4317 Stilson Circle, Norcross, GA 30092, US

WASILEWSKI, Anthony, J., 10680 Wren Ridge Road, Alpharetta, GA 30022, US

Agent: GARDNER, Kelly, A., Scientific-Atlantic, Inc., Intellectual Property Dept., One Technology Parkway South, Norcross, GA 30092, US

Language: EN (113 pages, 29 drawings)

Application: WO 1998US16079 A 19980731 (Local application)

Priority: US 199754575 P 19970801

US 1998126921 A 19980731

Designated States: (National Original) AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM HR HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW

(Regional Original) AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW

Original IPC: H04N-7/167(A)

Current IPC: H04H-1/00(R,I,M,JP,20060101,20051220,A,L) H04H-1/00

(R,I,M,JP,20060101,20051220,C,L) H04L-9/08(R,I,M,JP,20060101,20051220,A,L) H04L-9/08
 (R,I,M,JP,20060101,20060310,C,F) H04N-5/00(R,I,M,EP,20060101,20051008,A) H04N-5/00
 (R,I,M,EP,20060101,20051008,C) H04N-7/16(R,I,M,EP,20060101,20051008,A) H04N-7/16
 (R,I,M,EP,20060101,20051008,C) H04N-7/167(R,I,M,EP,20060101,20051008,A) H04N-7/167
 (R,I,M,EP,20060101,20051008,C) H04N-7/173(R,I,M,JP,20060101,20051220, A,F) H04N-7/173
 (R,I,M,JP,20060101,20051220,C,L)

Original Abstract:

A cable television system provides conditional access to services. The cable television system includes a headend from which service "instances", or programs, are broadcast and a plurality of set top units for receiving the instances and selectively decrypting the instances for display to system subscribers. The service instances are encrypted using public and/or private keys provided by service providers or central authorization agents. Keys used by the set tops for selective decryption may also be public or private in nature, and such keys may be reassigned at different times to provide a cable television system in which piracy concerns are minimized.

Un reseau de television par cable assure un acces conditionnel a des services. Le reseau de television par cable comprend une tete de reseau a partir de laquelle on diffuse les "instances" de service ou programmes. Ce reseau comprend aussi une pluralite d'unites decodeurs concues pour recevoir les instances et dechiffrer selectivement les instances qui vont s'afficher pour les abonnes du reseau. Les instances de service sont chiffrees par des cle publiques et/ou privees fournies par des fournisseurs de service ou des agents d'autorisation centraux. Les cle utilisees par les decodeurs permettant un dechiffrement selectif peuvent aussi etre publiques ou privees et de telles cle peuvent etre reaffectees a differents moments pour assurer un reseau de television par cable dans lequel les risques de piratage sont minimises.

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